



# **STIC Search Report**

## **EIC 2600**

**STIC Database Tracking Number: 94751**

**TO: Suhan Ni**  
**Location: PK2 8B45**  
**Art Unit: 2643**  
**Tuesday, January 27, 2004**

**Case Serial Number: 09/502258**

**From: Pamela Reynolds**  
**Location: EIC 2600**  
**PK2-3C03**  
**Phone: 306-0255**

**Pamela.Reynolds@uspto.gov**

### **Search Notes**

Dear Suhan Ni,

Please find attached the search results for 09/502258. I used the search strategy I emailed to you to edit, not hearing from you I proceeded. I searched the standard Dialog files. I could not search the internet or other web databases because the network has been having problems for 2 days.

If you would like a re-focus please let me know.

Thank you.

Pamela Reynolds

File 344:Chinese Patents Abs Aug 1985-2003/Nov  
(c) 2003 European Patent Office  
File 347:JAPIO Oct 1976-2003/Sep(Updated 040105)  
(c) 2004 JPO & JAPIO  
File 350:Derwent WPIX 1963-2004/UD,UM &UP=200406  
(c) 2004 Thomson Derwent

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Set	Items	Description
S1	4260	HEARING(3N)(AID OR DEVICE? OR APPARATUS OR UNIT??)
S2	15111	ANALOG(3N)DIGITAL()CONVERT?
S3	41702	MICROPHONE?? OR MICRO()PHONE??
S4	708	(ELECTROMAGNET? OR ELECTRO()MAGNET?)(3N)SHIELD?(3N)(CASE?? OR ENCLOSURE? OR ENCASEMENT?)
S5	59	S1 AND (MODULAR? OR DETACHABLE)
S6	157	(MOUNTED OR ATTACH? OR ADJOIN? OR JOIN? OR COUPL?) AND (OU- TSIDE OR OUT()SIDE OR EXTERNAL?) AND S2
S7	9	AU=(WUERSCH C? OR WUERSCH, C?)
S8	0	S6 AND S4
S9	0	S6 AND S1
S10	2	S6 AND (ELECTROMAGNET? OR ELECTRO()MAGNET?)(3N)SHIELD?
S11	27	S1 AND S2
S12	3	S11 AND (ELECTROMAGNET? OR ELECTRO()MAGNET?)
S13	3	S12 NOT S10

10/3,K/1 (Item 1 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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015491979  
WPI Acc No: 2003-554126/200352  
XRPX Acc No: N03-439935

**Production method of metal oxide coated substrate used for e.g. battery and telephone equipment, involves oxidizing reactant mixture formed at external and shield surfaces of substrate, rapidly at elevated temperature**

Patent Assignee: ENSCI INC (ENSC-N)

Inventor: CLOUGH T J

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 6555161	B1	20030429	US 2001861272	A	20010518	200352 B

Priority Applications (No Type Date): US 2001861272 A 20010518

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 6555161	B1	17	B05D-007/00	

... **substrate used for e.g. battery and telephone equipment, involves oxidizing reactant mixture formed at external and shield surfaces of substrate, rapidly at elevated temperature**

Abstract (Basic):

... The **external** and shielded surfaces of a substrate, reacts with a metal oxide precursor, for forming a...

... oxides, chemical oxidation or reduction of carbon monoxide and hydrocarbon from internal combustion engine, oxidative **coupling** of methane to alkane and alkene, hydrocarbon reforming, hydrogenation of alkylaromatic to olefin, olefin to...

...hydrodecyclization, isomerization, ammoxidation and aldol condensation using aldehyde and carboxylic acid, and also used for **electromagnetic shielding** element, electrostatic dissipation element, battery, porous membrane, heating element, transducer used in surface acoustic wave...

...interference device (SQUID) used in biomedical, geophysical, submarine, air plane detection, infrared and microwave sensor, **analog** to **digital converter**, voltage standard, signal processor, microwave mixer, filter and amplifier...

...Title Terms: **EXTERNAL** ;

10/3,K/2 (Item 2 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

015491978  
WPI Acc No: 2003-554125/200352  
XRPX Acc No: N03-439934

**Metal oxide coating method for substrate used in battery, involves oxidizing reactant mixture formed on external and shielded surfaces of substrate, rapidly at high temperature**

Patent Assignee: ENSCI INC (ENSC-N)

Inventor: CLOUGH T J

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 6555160	B1	20030429	US 2001861271	A	20010518	200352 B

Priority Applications (No Type Date): US 2001861271 A 20010518

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 6555160	B1	17	B05D-007/00		

**Metal oxide coating method for substrate used in battery, involves oxidizing reactant mixture formed on external and shielded surfaces of substrate, rapidly at high temperature**

Abstract (Basic):

... A reactant mixture is obtained by reacting the **external** and shielded surfaces of a substrate with a metal oxide precursor. A metal oxide coating...

... of carbon monoxide and hydrocarbons, reducing carbon monoxide and hydrocarbon from internal combustion engine, oxidative **coupling** of methane to alkane and alkene, hydrocarbon reforming, dehydrogenation of alkylaromatic to olefin, olefin to...

...to ketone, hydrodecyclization, isomerization, ammoxidation, of olefin, aldol condensation, using aldehyde and carboxylic acid, for **electromagnetic shielding** element, electrostatic dissipation element, battery, porous membrane, heating element, transducer used in surface acoustic wave...

...interference device (SQUID) used in biomedical, geophysical, submarine, air plane detection, infrared and microwave sensor, **analog** to **digital converter**, voltage standard, signal processor, microwave mixer, filter and amplifier...

...Title Terms: **EXTERNAL** ;

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13/3,K/1 (Item 1 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
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015616415 \*\*Image available\*\*  
WPI Acc No: 2003-678572/200364  
XRAM Acc No: C03-185363  
XRPX Acc No: N03-541752

Hearing aid , for people suffering from hearing loss, comprises  
hearing aid shell with microphone, receiver, and amplifier and  
radio-frequency-attenuating material disposed within shell  
Patent Assignee: BERGER H S (BERG-I); CHOJAR S (CHOJ-I); FAZIO J (FAZI-I);  
GILMORE D (GILM-I)

Inventor: BERGER H S; CHOJAR S; FAZIO J; GILMORE D  
Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20030123686	A1	20030703	US 97851655	A	19970505	200364 B

Priority Applications (No Type Date): US 97851655 A 19970505

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 20030123686	A1	16	H04R-025/00	

Hearing aid , for people suffering from hearing loss, comprises  
hearing aid shell with microphone, receiver, and amplifier and  
radio-frequency-attenuating material disposed within shell

Abstract (Basic):

... Hearing aid comprises a hearing aid , shell (218); a  
microphone, a receiver (208), and an amplifier (204). The microphone,  
receiver, and  
... An INDEPENDENT CLAIM is also included for a method of producing  
a hearing aid comprising placing a radio-frequency-attenuating  
material around a hearing aid component within a hearing aid  
shell...

...The hearing aid has an improved electromagnetic immunity...

...The figure shows a schematic diagram of the hearing aid .

Technology Focus:

... Preferred Component: The hearing aid comprises an analog  
-to- digital converter , a processor, and a digital-to-analog  
converter...

13/3,K/2 (Item 2 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
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013258872 \*\*Image available\*\*  
WPI Acc No: 2000-430755/200037  
XRPX Acc No: N00-321456

Hearing aid for converting analog/digital signals for a microphone  
includes a microphone device screen case with an acoustic input carrying  
a flexible foil coated with strip conductors for a converter's digital  
output.

Patent Assignee: PHONAK AG (PHON-N)  
Inventor: WUERSCH C

Number of Countries: 091 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200022905	A2	20000427	WO 2000CH81	A	20000211	200037 B
AU 200024270	A	20000508	AU 200024270	A	20000211	200037
			WO 2000CH81	A	20000211	
EP 1264513	A2	20021211	EP 2000902525	A	20000211	200301
			WO 2000CH81	A	20000211	
JP 2003507909	W	20030225	JP 2000576695	A	20000211	200317
			WO 2000CH81	A	20000211	

Priority Applications (No Type Date): WO 2000CH81 A 20000211

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200022905 A2 G 9 H04R-025/00

Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN  
CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP  
KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE  
SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR  
IE IT KE LS LU MC MW NL OA PT SD SE SL SZ TZ UG ZW

AU 200024270 A H04R-025/00 Based on patent WO 200022905

EP 1264513 A2 G H04R-025/00 Based on patent WO 200022905

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT  
LI LT LU LV MC MK NL PT RO SE SI

JP 2003507909 W 14 H04R-025/00 Based on patent WO 200022905

Hearing aid for converting analog/digital signals for a microphone  
includes a microphone device screen case with...

Abstract (Basic):

... flexible foil (15) coated with strip conductors (17) for a  
converter's digital output. An **analog / digital converter** (16) is  
encapsulated with a thin screen on a metallised layer (17c) in the  
foil. The **analog / digital converter** is built inside the screen.  
Its analog input (EA) is fed into the case through...  
... For screening out **electromagnetic** interference in hearing aids  
...

...This device is modular and flexible in its possible uses. It has an  
**analog / digital converter** module for different applications with  
different microphone equipment. The module has two analog inputs,  
having...

...figure shows a cross-sectional drawing representing the construction of  
combined microphone equipment and an **analog / digital converter** for  
a microphone...

... **Analog / digital converter** (16)

13/3,K/3 (Item 3 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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011142589 \*\*Image available\*\*

WPI Acc No: 1997-120513/199712

XRPX Acc No: N97-099143

**Digital hearing aid - has analog to digital converter included  
in microphone housing, which comprises screening arrangement pref. formed**

**of electrically conductive material**

Patent Assignee: SIEMENS AUDIOLOGISCHE TECH GMBH (SIEI )

Inventor: RAIMUND M; MARTIN R

Number of Countries: 004 Number of Patents: 005

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 19545760	C1	19970220	DE 1045760	A	19951207	199712 B
DK 9601391	A	19970608	DK 961391	A	19961206	199739
US 5796848	A	19980818	US 96761495	A	19961206	199840
DE 29521956	U1	19981105	DE 1045760	A	19951207	199850
			DE 95U2021956	U	19951207	
CH 689343	A5	19990226	CH 962488	A	19961014	199913

Priority Applications (No Type Date): DE 1045760 A 19951207; DE 95U2021956 U 19951207

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 19545760	C1		5	H04R-025/00	
DE 29521956	U1			H04R-025/00	application DE 1045760
DK 9601391	A			H04R-025/00	
US 5796848	A			H04R-025/00	
CH 689343	A5			H04R-025/00	

**Digital** hearing aid - ...

...has analog to digital converter included in microphone housing, which comprises screening arrangement pref. formed of electrically conductive material

...Abstract (Basic): The **hearing aid** comprises at least one microphone (1), a speaker (5), and a digital signal processing arrangement...

...a signal converter, an amplifier (3), as well as a filter arrangement (4,4'). An **analog to digital converter** (7) is included within the microphone housing (6...

...microphone housing pref. comprises a screening arrangement (9), that protects the components from high-frequency **electromagnetic** waves. The screening arrangement is pref. formed of electrically conductive material...

...ADVANTAGE - Provides **hearing aid** insensitive to **electromagnetic** radiation...

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File 348:EUROPEAN PATENTS 1978-2004/Jan W04

(c) 2004 European Patent Office

File 349:PCT FULLTEXT 1979-2002/UB=20040122,UT=20040115

(c) 2004 WIPO/Univentio

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Set	Items	Description
S1	2446	HEARING(3N) (AID OR DEVICE? OR APPARATUS OR UNIT??)
S2	23902	ANALOG(3N)DIGITAL()CONVERT?
S3	26059	MICROPHONE?? OR MICRO()PHONE??
S4	359	(ELECTROMAGNET? OR ELECTRO()MAGNET?) (3N)SHIELD?(3N) (CASE?? OR ENCLOSURE? OR ENCASEMENT?)
S5	51	S1(5N) (MODULAR? OR DETACHABLE)
S6	10	(MOUNTED OR ATTACH? OR ADJOIN? OR JOIN? OR COUPL?) (5N) (OUT- SIDE OR OUT()SIDE OR EXTERNAL?) (3N)S2
S7	4	AU=(WUERSCH C? OR WUERSCH, C?)
S8	10	S6 NOT S7
S9	7050	IC=H04R?
S10	0	S8 AND S9
S11	0	S8(S)S1
S12	0	S1(S)S4
S13	0	S1(S)S6

7/3,K/1 (Item 1 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
(c) 2004 European Patent Office. All rts. reserv.

01160062  
HEARING AID COMPRISING A MICROPHONE ARRANGEMENT AND AN ANALOG-DIGITAL  
CONVERTER MODULE

HORGERAT MIT EINER MIKROPHONANORDNUNG SOWIE ANALOG/DIGITAL-WANDLERMODUL  
APPAREIL DE CORRECTION AUDITIVE COMPORTANT UN ENSEMBLE MICROPHONE ET UN  
MODULE CONVERTISSEUR ANALOGIQUE/NUMERIQUE

PATENT ASSIGNEE:

PHONAK AG, (776611), Laubisrutistrasse 28, 8712 Stafa, (CH), (Applicant  
designated States: all)

INVENTOR:

WUERSCH, Christoph, Stadli 13, CH-9470 Werdenberg, (CH)

LEGAL REPRESENTATIVE:

Troesch Scheidegger Werner AG (101092), Schwantenmos 14, 8126 Zumikon,  
(CH)

PATENT (CC, No, Kind, Date): EP 1264513 A2 021211 (Basic)  
WO 2000022905 000427

APPLICATION (CC, No, Date): EP 2000902525 000211; WO 2000CH81 000211  
DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;  
LU; MC; NL; PT; SE

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS: H04R-025/00; H03M-001/12

NOTE:

No A-document published by EPO

LANGUAGE (Publication,Procedural,Application): German; German; German

INVENTOR:

WUERSCH, Christoph ...

7/3,K/2 (Item 2 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
(c) 2004 European Patent Office. All rts. reserv.

01105451  
ENERGY STORAGE UNIT, PREFERABLY FOR A HEARING AID, METHOD FOR CHARGING SAID  
ENERGY STORAGE UNIT, AND A DEVICE FOR CARRYING OUT THE METHOD  
ENERGIESPEICHEREINHEIT, VORZUGSWEISE FUR EIN HORGERAT, VERFAHREN UND  
VORRICHTUNG ZUM AUFLADEN DER ENERGIESPEICHEREINHEIT  
UNITE DE STOCKAGE D'ENERGIE, DE PREFERENCE POUR UN APPAREIL AUDITIF,  
PROCEDE POUR CHARGER CETTE UNITE DE STOCKAGE D'ENERGIE ET DISPOSITIF  
POUR METTRE EN OEUVRE LEDIT PROCEDE

PATENT ASSIGNEE:

PHONAK AG, (776611), Laubisrutistrasse 28, 8712 Stafa, (CH), (Applicant  
designated States: all)

INVENTOR:

WUERSCH, Christoph, Hauptstrasse 43, CH-8867 Niederurnen, (CH)

VAN OERLE, Gerard, Guschstrasse 50, CH-8610 Uster, (CH)

PATENT (CC, No, Kind, Date):

WO 99055131 991104

APPLICATION (CC, No, Date): EP 99939895 990908; WO 99CH421 990908

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;  
LU; MC; NL; PT; SE

INTERNATIONAL PATENT CLASS: H04R-025/00; H02J-007/00; H01M-002/10

LANGUAGE (Publication,Procedural,Application): German; German; German

INVENTOR:

WUERSCH, Christoph ...

7/3,K/3 (Item 1 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
(c) 2004 WIPO/Univentio. All rts. reserv.

00559532 \*\*Image available\*\*

HEARING AID COMPRISING A MICROPHONE ARRANGEMENT AND AN ANALOG-DIGITAL  
CONVERTER MODULE  
APPAREIL DE CORRECTION AUDITIVE COMPORTANT UN ENSEMBLE MICROPHONE ET UN  
MODULE CONVERTISSEUR ANALOGIQUE/NUMERIQUE

Patent Applicant/Assignee:

PHONAK AG,  
WUERSCH Christoph,

Inventor(s):

WUERSCH Christoph

Patent and Priority Information (Country, Number, Date):

Patent: WO 200022905 A2 20000427 (WO 0022905)

Application: WO 2000CH81 20000211 (PCT/WO CH0000081)

Priority Application: WO 2000CH81 20000211

Designated States: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK  
DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR  
LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ  
TM TR TT TZ UA UG US UZ VN YU ZA ZW GH GM KE LS MW SD SL SZ TZ UG ZW AM  
AZ BY KG KZ MD RU TJ TM AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL  
PT SE BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

Publication Language: German

Fulltext Word Count: 959

Inventor(s):

WUERSCH Christoph ...

7/3,K/4 (Item 2 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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00523779 \*\*Image available\*\*

ENERGY STORAGE UNIT, PREFERABLY FOR A HEARING AID, METHOD FOR CHARGING SAID  
ENERGY STORAGE UNIT, AND A DEVICE FOR CARRYING OUT THE METHOD  
UNITE DE STOCKAGE D'ENERGIE, DE PREFERENCE POUR UN APPAREIL AUDITIF,  
PROCEDE POUR CHARGER CETTE UNITE DE STOCKAGE D'ENERGIE ET DISPOSITIF  
POUR METTRE EN OEUVRE LEDIT PROCEDE

Patent Applicant/Assignee:

PHONAK AG,  
WUERSCH Christoph,  
VAN OERLE Gerard,

Inventor(s):

WUERSCH Christoph ,

VAN OERLE Gerard

Patent and Priority Information (Country, Number, Date):

Patent: WO 9955131 A2 19991104

Application: WO 99CH421 19990908 (PCT/WO CH9900421)

Priority Application: WO 99CH421 19990908

Designated States: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK  
DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR  
LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM  
TR TT UA UG US UZ VN YU ZA ZW GH GM KE LS MW SD SL SZ UG ZW AM AZ BY KG  
KZ MD RU TJ TM AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF  
BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

Publication Language: German  
Fulltext Word Count: 3106

Inventor(s):  
WUERSCH Christoph ...  
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File 2:INSPEC 1969-2004/Jan W3  
(c) 2004 Institution of Electrical Engineers  
File 6:NTIS 1964-2004/Jan W4  
(c) 2004 NTIS, Intl Cpyrght All Rights Res  
File 8:Ei Compendex(R) 1970-2004/Jan W3  
(c) 2004 Elsevier Eng. Info. Inc.  
File 34:SciSearch(R) Cited Ref Sci 1990-2004/Jan W3  
(c) 2004 Inst for Sci Info  
File 35:Dissertation Abs Online 1861-2004/Dec  
(c) 2004 ProQuest Info&Learning  
File 65:Inside Conferences 1993-2004/Jan W4  
(c) 2004 BLDSC all rts. reserv.  
File 94:JICST-EPlus 1985-2004/Jan W3  
(c)2004 Japan Science and Tech Corp(JST)  
File 95:TEME-Technology & Management 1989-2004/Jan W2  
(c) 2004 FIZ TECHNIK  
File 99:Wilson Appl. Sci & Tech Abs 1983-2004/Dec  
(c) 2004 The HW Wilson Co.  
File 144:Pascal 1973-2004/Jan W3  
(c) 2004 INIST/CNRS  
File 233:Internet & Personal Comp. Abs. 1981-2003/Sep  
(c) 2003 EBSCO Pub.  
File 239:Mathsci 1940-2003/Feb  
(c) 2003 American Mathematical Society  
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec  
(c) 1998 Inst for Sci Info  
File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13  
(c) 2002 The Gale Group  
File 603:Newspaper Abstracts 1984-1988  
(c)2001 ProQuest Info&Learning  
File 483:Newspaper Abs Daily 1986-2004/Jan 26  
(c) 2004 ProQuest Info&Learning  
? ds

Set	Items	Description
S1	8724	HEARING(3N)(AID OR DEVICE? OR APPARATUS OR UNIT??)
S2	17418	ANALOG(3N)DIGITAL()CONVERT?
S3	30709	MICROPHONE?? OR MICRO()PHONE??
S4	422	(ELECTROMAGNET? OR ELECTRO()MAGNET?)(3N)SHIELD?(3N)(CASE?? OR ENCLOSURE? OR ENCASEMENT?)
S5	16	S1 AND (MODULAR? OR DETACHABLE)
S6	42	(MOUNTED OR ATTACH? OR ADJOIN? OR JOIN? OR COUPL?) AND (OU- TSIDE OR OUT()SIDE OR EXTERNAL?) AND S2
S7	14	AU=(WUERSCH C? OR WUERSCH, C?)
S8	0	S1 AND S6
S9	0	S4 AND S6
S10	0	S1 AND S4
S11	228	S1 AND (ELECTROMAGNET? OR ELECTRO()MAGNET?)
S12	0	S11 AND S2
S13	79	S11 AND INTERFERENCE
S14	1	S13 AND SHIELD?
S15	0	S2 AND S4
S16	0	S1 AND S7

14/3,K/1 (Item 1 from file: 8)

DIALOG(R) File 8: Ei Compendex(R)

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04760992 E.I. No: EIP97073738994

**Title: Professional Program Proceedings of the Electronics Industries Forum**

Author: Anon (Ed.)

Conference Title: Professional Program Proceedings of the Electronics Industries Forum

Conference Location: Boston, MA, USA Conference Date: 19970506-19970508  
E.I. Conference No.: 46652

Source: Professional Program Proceedings of the Electronics Industries Forum 1997. IEEE, Piscataway, NJ, USA, 97CH36084. 301p

Publication Year: 1997

CODEN: 002622

Language: English

Abstract: The proceedings contains 16 papers from the 1997 Electronics Industries Forum. Topics discussed include: **hearing aid** -wireless **device** compatibility; electromechanical device disassembly; **electromagnetic shielding** ; heat sink design; fractal antennas; flow switching networks; tag switching; product development; virtual prototypes; photonic device packaging automation; medical devices; **electromagnetic interference** ; multistage switching networks; surface mount technology course outline; radio frequency power amplifiers; product design standards

...  
Descriptors: Electronics industry; Telephone **hearing** aids; Electromechanical **devices** ; Radiation **shielding** ; Fins (heat exchange); Traveling wave antennas; Asynchronous transfer mode; Radio frequency amplifiers; Product design; Process...

Identifiers: **Hearing aid** compatible cellular telephones; End-of-life disassembly; **Electromagnetic shielding** standards; Optimum heat sink design; Fractal antennas; Flow switching networks; Tag switching; Virtual prototypes; Photonics...

?

File 9:Business & Industry(R) Jul/1994-2004/Jan 26  
     (c) 2004 Resp. DB Svcs.  
 File 15:ABI/Inform(R) 1971-2004/Jan 24  
     (c) 2004 ProQuest Info&Learning  
 File 16:Gale Group PROMT(R) 1990-2004/Jan 26  
     (c) 2004 The Gale Group  
 File 20:Dialog Global Reporter 1997-2004/Jan 27  
     (c) 2004 The Dialog Corp.  
 File 47:Gale Group Magazine DB(TM) 1959-2004/Jan 26  
     (c) 2004 The Gale group  
 File 75:TGG Management Contents(R) 86-2004/Jan W3  
     (c) 2004 The Gale Group  
 File 80:TGG Aerospace/Def.Mkts(R) 1986-2004/Jan 26  
     (c) 2004 The Gale Group  
 File 88:Gale Group Business A.R.T.S. 1976-2004/Jan 27  
     (c) 2004 The Gale Group  
 File 98:General Sci Abs/Full-Text 1984-2004/Dec  
     (c) 2004 The HW Wilson Co.  
 File 112:UBM Industry News 1998-2004/Jan 27  
     (c) 2004 United Business Media  
 File 141:Readers Guide 1983-2004/Dec  
     (c) 2004 The HW Wilson Co  
 File 148:Gale Group Trade & Industry DB 1976-2004/Jan 26  
     (c)2004 The Gale Group  
 File 160:Gale Group PROMT(R) 1972-1989  
     (c) 1999 The Gale Group  
 File 275:Gale Group Computer DB(TM) 1983-2004/Jan 26  
     (c) 2004 The Gale Group  
 File 264:DIALOG Defense Newsletters 1989-2004/Jan 15  
     (c) 2004 The Dialog Corp.  
 File 484:Periodical Abs Plustext 1986-2004/Jan W3  
     (c) 2004 ProQuest  
 File 553:Wilson Bus. Abs. FullText 1982-2004/Dec  
     (c) 2004 The HW Wilson Co  
 File 570:Gale Group MARS(R) 1984-2004/Jan 26  
     (c) 2004 The Gale Group  
 File 608:KR/T Bus.News. 1992-2004/Jan 27  
     (c)2004 Knight Ridder/Tribune Bus News  
 File 620:EIU:Viewswire 2004/Jan 25  
     (c) 2004 Economist Intelligence Unit  
 File 613:PR Newswire 1999-2004/Jan 27  
     (c) 2004 PR Newswire Association Inc  
 File 621:Gale Group New Prod.Annou.(R) 1985-2004/Jan 26  
     (c) 2004 The Gale Group  
 File 623:Business Week 1985-2004/Jan 26  
     (c) 2004 The McGraw-Hill Companies Inc  
 File 624:McGraw-Hill Publications 1985-2004/Jan 26  
     (c) 2004 McGraw-Hill Co. Inc  
 File 634:San Jose Mercury Jun 1985-2004/Jan 26  
     (c) 2004 San Jose Mercury News  
 File 635:Business Dateline(R) 1985-2004/Jan 24  
     (c) 2004 ProQuest Info&Learning  
 File 636:Gale Group Newsletter DB(TM) 1987-2004/Jan 26  
     (c) 2004 The Gale Group  
 File 647:CMP Computer Fulltext 1988-2004/Jan W3  
     (c) 2004 CMP Media, LLC  
 File 696:DIALOG Telecom. Newsletters 1995-2004/Jan 15  
     (c) 2004 The Dialog Corp.  
 File 674:Computer News Fulltext 1989-2004/Jan W3  
     (c) 2004 IDG Communications  
 File 810:Business Wire 1986-1999/Feb 28

(c) 1999 Business Wire  
File 813:PR Newswire 1987-1999/Apr 30  
(c) 1999 PR Newswire Association Inc  
? ds

Set	Items	Description
S1	25234	HEARING(3N) (AID OR DEVICE? OR APPARATUS OR UNIT??)
S2	16129	ANALOG(3N) DIGITAL() CONVERT?
S3	141419	MICROPHONE?? OR MICRO() PHONE??
S4	163	(ELECTROMAGNET? OR ELECTRO() MAGNET?) (3N) SHIELD? (3N) (CASE?? OR ENCLOSURE? OR ENCASEMENT?)
S5	20	S1(5N) (MODULAR? OR DETACHABLE)
S6	2	(MOUNTED OR ATTACH? OR ADJOIN? OR JOIN? OR COUPL?) (5N) (OUT- SIDE OR OUT() SIDE OR EXTERNAL?) (3N) S2
S7	0	AU=(WUERSCH C? OR WUERSCH, C?)
S8	1	RD S6 (unique items)
S9	0	S4(S) S5
S10	2	S1(S) S4
S11	2	S10 NOT S6
S12	1	RD S11 (unique items)
S13	0	S2(S) S4

8/3,K/1 (Item 1 from file: 16)  
DIALOG(R)File 16:Gale Group PROMT(R)  
(c) 2004 The Gale Group. All rts. reserv.

09337861 Supplier Number: 81529004 (USE FORMAT 7 FOR FULLTEXT)  
**How to Record own Song: Step By Step, Here's How To Create And Capture  
Original Music on Your Computer. (Start Up).**

Nelson, Mark  
Electronic Musician, v18, n2, p14(8)  
Feb, 2002  
Language: English Record Type: Fulltext  
Document Type: Newsletter; Trade  
Word Count: 5088

... invest in an interface designed for recording instead. Pros prefer  
interfaces with the connectors and **analog -to- digital converters**  
(ADCs) **mounted** in an **external** box, because they're more convenient and  
less likely to pick up electrical noise from...  
?

12/3,K/1 (Item 1 from file: 16)  
DIALOG(R)File 16:Gale Group PROMT(R)  
(c) 2004 The Gale Group. All rts. reserv.

02954997 Supplier Number: 43999270 (USE FORMAT 7 FOR FULLTEXT)

**BEDDALL INITIATES GSM INTERFERENCE STUDY**

Exchange, v5, n28, pN/A

July 30, 1993

Language: English Record Type: Fulltext

Document Type: Newsletter; Trade

Word Count: 795

... heads TRL's Electromagnetic Compatibility Section and is Chairman of the government sub-committee examining **hearing aid** interference, has identified a conductive plastic case which he said could be fitted to existing hearing aids and new models. The **case shields** hearing aids from **electromagnetic** interference and is to be tested intensively by Telecom Research within the next three to...  
?

File 5:Biosis Previews(R) 1969-2004/Jan W3  
(c) 2004 BIOSIS  
File 73:EMBASE 1974-2004/Jan W3  
(c) 2004 Elsevier Science B.V.  
File 155:MEDLINE(R) 1966-2004/Jan W3  
(c) format only 2004 The Dialog Corp.  
File 172:EMBASE Alert 2004/Jan W4  
(c) 2004 Elsevier Science B.V.  
File 188:Health Devices Sourcebook 2002  
ECRI (A nonprofit agency)  
File 198:Health Devices Alerts(R) 1977-2004/Jan W4  
(c) 2004 ECRI-nonprft agncy  
? ds

Set	Items	Description
S1	9874	HEARING(3N) (AID OR DEVICE? OR APPARATUS OR UNIT??)
S2	800	ANALOG(3N)DIGITAL()CONVERT?
S3	3740	MICROPHONE?? OR MICRO()PHONE??
S4	0	(ELECTROMAGNET? OR ELECTRO()MAGNET?) (3N)SHIELD? (3N) (CASE?? OR ENCLOSURE? OR ENCASEMENT?)
S5	12	S1 AND (MODULAR? OR DETACHABLE)
S6	7	(MOUNTED OR ATTACH? OR ADJOIN? OR JOIN? OR COUPL?) AND (OU- TSIDE OR OUT()SIDE OR EXTERNAL?) AND S2
S7	0	AU=(WUERSCH C? OR WUERSCH, C?)
S8	0	S1 AND S6
S9	0	S4 AND S6
S10	0	S1 AND S4
S11	169	S1 AND (ELECTROMAGNET? OR ELECTRO()MAGNET?)
S12	2	S11 AND S2
S13	24	S11 AND INTERFERENCE
S14	3	S13 AND SHIELD?
S15	0	S2 AND S4
S16	0	S1 AND S7
S17	2	RD S14 (unique items)
S18	7	S6 NOT S17
S19	7	RD S18 (unique items)
S20	2	S12 NOT (S17 OR S6)
S21	1	RD S20 (unique items)
S22	19	S13 NOT (S6 OR S12 OR S14)
S23	12	RD S22 (unique items)

17/3,K/1 (Item 1 from file: 73)  
DIALOG(R)File 73:EMBASE  
(c) 2004 Elsevier Science B.V. All rts. reserv.

11380642 EMBASE No: 2001395359

**Wireless telephone- hearing aid electromagnetic compatibility  
research at the University of Oklahoma**

Schlegel R.E.; Ravindran A.; Raman S.; Grant H.  
R.E. Schlegel, School of Industrial Engineering, University of Oklahoma,  
Ctr. Study Wireless Electromagnetic, 202 W. Boyd, Norman, OK 73019-1022  
United States  
Journal of the American Academy of Audiology ( J. AM. ACAD. AUDIOL. ) ( Canada) 2001, 12/6 (301-308)  
CODEN: JAAAE ISSN: 1050-0545  
DOCUMENT TYPE: Journal ; Article  
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH  
NUMBER OF REFERENCES: 10

**Wireless telephone- hearing aid electromagnetic compatibility  
research at the University of Oklahoma**

A multiphase study examining **electromagnetic compatibility (EMC)** between wireless digital telephones and hearing aids has been under way at the...  
...of Oklahoma EMC Center since May 1995. In a phase 1 clinical study involving 68 **hearing aid** wearers, **interference** varied significantly by telephone technology, **hearing aid** type, and **hearing loss** characteristics. More than 80 percent of the tests resulted in either no **interference** or a detection threshold distance less than 1 meter. Metallic **shielding** of the units yielded positive results. Various elements of phase 2 involved instrument-based tests of **hearing aid** interference using telephones in a sound-isolation chamber and radio frequency signals in a waveguide, along with clinical studies of speech-to- **interference** ratios, all leading to the development of standards of measurement and performance criteria for telephone emissions and **hearing aid** immunity. Results to date confirm that bystander **interference** is of less concern than user **interference** , which is the focus of continuing research.  
MEDICAL DESCRIPTORS:  
\*telephone; \* **hearing aid**  
**electromagnetic field**; research; university; United States; technology; **hearing loss--therapy--th**; instrument; sound; telecommunication; speech discrimination; standardization; measurement; performance; immunity; human; major clinical...

17/3,K/2 (Item 2 from file: 73)  
DIALOG(R)File 73:EMBASE  
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07270928 EMBASE No: 1998175611

**Radiofrequency interference with medical devices: A technical  
information statement**

IEEE Engineering in Medicine and Biology Magazine ( IEEE ENG. MED. BIOL. MAG. ) (United States) 1998, 17/3 (111-114)  
CODEN: IEMBD ISSN: 0739-5175  
DOCUMENT TYPE: Journal; Review  
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH  
NUMBER OF REFERENCES: 28

**Radiofrequency interference with medical devices: A technical**

## information statement

...correctly because of interferences from various emitters of radiofrequency energy. This condition is called radiofrequency **interference** (RFI). The consequences of these failures range from inconvenience to serious injuries and death. Reasons...

...the 3 V/m level specified in present RFI standards. Most of these techniques including **shielding**, grounding, and filtering, are not costly if they are incorporated into the initial design of...

### MEDICAL DESCRIPTORS:

radiofrequency; telephone; food and drug administration; monitor;  
**electromagnetic** field; pacemaker; **hearing aid**; defibrillator;  
amplitude modulation; review

?

19/3,K/1 (Item 1 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
(c) 2004 BIOSIS. All rts. reserv.

0013272479 BIOSIS NO.: 200100444318  
**Portable medical gas system tester**  
AUTHOR: Scott George L (Reprint)  
AUTHOR ADDRESS: So. Salem, NY, USA\*\*USA  
JOURNAL: Official Gazette of the United States Patent and Trademark Office  
Patents 1248 (5): July 31, 2001 2001  
MEDIUM: e-file  
PATENT NUMBER: US 6266995 PATENT DATE GRANTED: July 31, 2001 20010731  
PATENT CLASSIFICATION: 73-232 PATENT ASSIGNEE: Respiratory Management  
Services, Inc., Bedford Hills, NY, USA PATENT COUNTRY: USA  
ISSN: 0098-1133  
DOCUMENT TYPE: Patent  
RECORD TYPE: Abstract  
LANGUAGE: English

...ABSTRACT: and carbon dioxide/oxygen mixtures. The device has a computer, a digital display device, an **analog** to **digital converter**, a gas sensor, a pressure and vacuum transducer **coupled** to the gas sensor, and an oxygen transducer **coupled** to the gas sensor, an exhaust outlet for venting excess gases to **outside** of the device's case, a bi-directional flow sensor **coupled** to gas sensor, and a flow transducer **coupled** to the flow sensor. The computer analyzes and interprets the electrical signals relative to predetermined...

19/3,K/2 (Item 1 from file: 73)  
DIALOG(R)File 73:EMBASE  
(c) 2004 Elsevier Science B.V. All rts. reserv.

10827850 EMBASE No: 2000308369  
**From external to internal measurement: A form theory approach to evolution**  
Andrade E.  
E. Andrade, Departamento de Biologia, Universidad Nacional de Colombia, Santa Fe de Bogota, D.C. Colombia  
AUTHOR EMAIL: eandrade@ciencias.ciencias.unal.edu.co  
BioSystems ( BIOSYSTEMS ) (Ireland) 2000, 57/1 (49-62)  
CODEN: BSYMB ISSN: 0303-2647  
PUBLISHER ITEM IDENTIFIER: S0303264700000824  
DOCUMENT TYPE: Journal; Review  
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH  
NUMBER OF REFERENCES: 42

**From external to internal measurement: A form theory approach to evolution**

The point of view of **external** observers has led to an explanation of life based on digitally encoded information. In contrast...

...to the changes of perspective, so as to speak, if measurement is considered to be **external** or internal. Equilibrium theories developed for closed systems under ideal conditions are analogous to **external** measurements. On the other hand, morphogenetic perspectives as far from equilibrium thermodynamics applicable to open...

...Schuster. Therefore, interactions between living entities are seen as

reciprocal measurement processes that bring about **couplings** (shortened descriptions and local decreases of entropy) that are paid by partial record erasure (increase...

MEDICAL DESCRIPTORS:

algorithm; thermodynamics; **analog digital converter** ; natural selection; review

19/3,K/3 (Item 2 from file: 73)  
DIALOG(R)File 73:EMBASE  
(c) 2004 Elsevier Science B.V. All rts. reserv.

10749223 EMBASE No: 2000229294

**A telemetry system for the study of spontaneous cardiac arrhythmias**  
Rollins D.L.; Killingsworth C.R.; Walcott G.P.; Justice R.K.; Ideker R.E.; Smith W.M.  
D.L. Rollins, Cardiac Rhythm Management Laboratory, Department of Medicine, University of Alabama, 1670 University Boulevard, Birmingham, AL 35294 United States  
AUTHOR EMAIL: dlr@crml.uab.edu  
IEEE Transactions on Biomedical Engineering ( IEEE TRANS. BIOMED. ENG. ) (United States) 2000, 47/7 (887-892)  
CODEN: IEBEA ISSN: 0018-9294  
PUBLISHER ITEM IDENTIFIER: S0018929400051284  
DOCUMENT TYPE: Journal; Article  
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH  
NUMBER OF REFERENCES: 16

...connected in a unipolar manner. Each channel has a gain of fifty and is AC **coupled** , band limited to 0.07-260 Hz. The signals are digitized with 12 bits resolution at 1000 samples/s. The amplifiers, **analog -to-digital converter** , and control logic are packaged in an implantable unit. An umbilical cable is passed through the skin to an **external** backpack unit for power and data transmission. A custom serial interface card, a PC/104...

19/3,K/4 (Item 3 from file: 73)  
DIALOG(R)File 73:EMBASE  
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06667561 EMBASE No: 1996332442

**Development of a high permeability cored transintegumental power transformer**

Helmicki A.J.; Melvin D.M.; Henderson H.T.; Nebrigg D.; Venkat R.; Glos D.L.  
ECECS Department, University of Cincinnati, Cincinnati, OH 45221-0030 United States  
ASAIO Journal ( ASAIO J. ) (United States) 1996, 42/5 (M624-M629)  
CODEN: AJOU ISSN: 1058-2916  
DOCUMENT TYPE: Journal; Article  
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

...of this power via transcutaneous transformers, with the secondary implanted subcutaneously and the primary worn **externally** . Because these devices are air cored, they have relatively large, bulky **external** appliances, poor coil to coil **coupling** , and result in significant stray fields passing through adjacent tissues. This article reports on the...

MEDICAL DESCRIPTORS:

**analog digital converter** ; article; dog; functional anatomy;

mathematical model; membrane permeability; nonhuman; technical aid

19/3,K/5 (Item 4 from file: 73)  
DIALOG(R)File 73:EMBASE  
(c) 2004 Elsevier Science B.V. All rts. reserv.

05733908 EMBASE No: 1994151486

**A computerized data acquisition system for quantitative assessment of knee stability**

Al-Turaiki M.H.S.; Bukhari A.R.S.  
JCRPORP, P.O. Box 27240, Riyadh 11417 Saudi Arabia  
Journal of Clinical Engineering ( J. CLIN. ENG. ) (United States) 1994,  
19/2 (135-142)  
CODEN: JCEND ISSN: 0363-8855  
DOCUMENT TYPE: Journal; Article  
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

...applied manually to perform anterior-posterior drawer sign test, valgus- varus rotation test and internal- **external** tibial torsion test. Load and displacement transducers are placed at appropriate positions and are connected to a microcomputer through an **analog -to- digital converter** . The load versus linear displacement (or torque versus angular displacement) curve, which is in the...

**MEDICAL DESCRIPTORS:**

article; compliance (physical); computer system; functional assessment; human; information processing; **joint laxity--diagnosis--di**; **joint stiffness--diagnosis--di**; knee function; quantitative diagnosis

19/3,K/6 (Item 5 from file: 73)  
DIALOG(R)File 73:EMBASE  
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05687907 EMBASE No: 1994105447

**Early detection of delayed union in lower leg fractures using a computerised analysis of mechanical vibration reactions of bone for assessing the state of fracture healing**

Fellinger M.; Leitgeb N.; Szyszkowitz R.; Peicha G.; Passler J.; Seggl W. ; Schanner A.  
University Clinic of Surgery, Department of Traumatology, Technical University, Auenbruggerplatz 1, A-8036 Graz Austria  
Archives of Orthopaedic and Trauma Surgery ( ARCH. ORTHOP. TRAUMA SURG. ) (Germany) 1994, 113/2 (93-96)  
CODEN: AOTSE ISSN: 0936-8051  
DOCUMENT TYPE: Journal; Article  
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

...measuring system is composed of two sound transducers, an amplifier module and an AD converter **attached** to a PC. The assessment of 150 healthy individuals as well as an initial measuring series after treatment of tibial fractures with an **external** fixator system revealed highly significant differences between intact and fractured tibias. Thus, computerised sonometry is...

**MEDICAL DESCRIPTORS:**

amplifier; **analog digital converter** ; article; clinical article; controlled study; early diagnosis; fracture **external** fixation; functional assessment; human; microcomputer; microphone; normal human; priority journal; sound detection; tibia fracture

19/3,K/7 (Item 1 from file: 155)  
DIALOG(R)File 155:MEDLINE(R)  
(c) format only 2004 The Dialog Corp. All rts. reserv.

14532580 22339968 PMID: 12451806

**Image acquisition and image processing for the intraocular vision aid.**

Krisch I; Hijazi N; Hosticka B J

Fraunhofer Institute for Microelectronic Circuits and Systems, 47057  
Duisburg, Germany. krisch@ims.fhg.de

Biomedizinische Technik. Biomedical engineering (Germany) 2002, 47  
Suppl 1 Pt 1 p171-3, ISSN 0013-5585 Journal Code: 1262533

Document type: Journal Article

Languages: ENGLISH

Main-Citation Owner: NLM

Record type: Completed

... sensor stands out for low power consumption, random pixel access, and local brightness adaptation. An **analog - digital - converter** allows direct **coupling** to an **external** signal processor or a monolithically integrated unit for image processing to compress data.  
?

21/3,K/1 (Item 1 from file: 73)  
DIALOG(R)File 73:EMBASE  
(c) 2004 Elsevier Science B.V. All rts. reserv.

11380637 EMBASE No: 2001395354

**Field measurements of electromagnetic interference in hearing aids**

Levitt H.; Harkins J.; Singer B.; Yeung E.

H. Levitt, 998 Sea Eagle Loop, Bodega Bay, CA 94923-0610 United States  
Journal of the American Academy of Audiology ( J. AM. ACAD. AUDIOL. ) ( Canada) 2001, 12/6 (275-280)

CODEN: JAAAE ISSN: 1050-0545

DOCUMENT TYPE: Journal ; Article

LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

NUMBER OF REFERENCES: 2

**Field measurements of electromagnetic interference in hearing aids**

This investigation was a preliminary field study to determine the acoustic and perceptual characteristics of **hearing aid** distortion generated by digital wireless telephones, the usability of the telephones under field conditions, and the extent of bystander interference under field conditions. A two-channel **analog-to-digital converter** was used to monitor voltages generated by an acoustic (real-ear) and **electromagnetic** probe. Digital recordings of interference and speech plus interference were made on a laptop computer. Fifty-three **hearing aid** wearers listened to interference and speech plus interference through personal communication service 1900 and time...

**MEDICAL DESCRIPTORS:**

\* **electromagnetic field**; \* **hearing aid**

measurement; acoustics; perception; telephone; monitoring; ear; **analog digital converter** ; recording; speech discrimination; computer; interpersonal communication; rating scale; annoyance; sample; human; major clinical study; controlled...

?

23/3,K/1 (Item 1 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
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0014284643 BIOSIS NO.: 200300243362

Hearing aid users benefit from induction loop when using digital cellular phones.

AUTHOR: Sorri Martti (Reprint); Piiparinen Peeta; Huttunen Kerttu; Haho Mikko; Tobey Emily; Thibodeau Linda; Buckley Kristi

AUTHOR ADDRESS: Department of Otorhinolaryngology, Oulun Yliopisto, FIN-90014, P.O. Box 5000, Oulu, Finland\*\*Finland

AUTHOR E-MAIL ADDRESS: martti.sorri@oulu.fi

JOURNAL: Ear and Hearing 24 (2): p119-132 April 2003 2003

MEDIUM: print

ISSN:-0196-0202

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

Hearing aid users benefit from induction loop when using digital cellular phones.

ABSTRACT: Objective: Hearing aid users have recently been reported to experience problems with electromagnetic interference when using digital cellular phones. This study was undertaken to investigate the possible benefit of...

...benefit in two languages (Finnish and American English) as well as the benefit with two hearing aid technologies (analog versus digital). Design: The study was performed in controlled laboratory conditions at two...

DESCRIPTORS:

...ORGANISMS: patient, hearing aid user

METHODS & EQUIPMENT: hearing aid --

MISCELLANEOUS TERMS: ... electromagnetic interference ;

23/3,K/2 (Item 2 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
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0014226311 BIOSIS NO.: 200300185030

Hearing aids and digital wireless telephones.

AUTHOR: Preves David (Reprint)

AUTHOR ADDRESS: Micro-Tech Hearing Instruments, 3500 Holly Lane No., Suite 10, Plymouth, MN, 55447, USA\*\*USA

AUTHOR E-MAIL ADDRESS: dpreves@mthearing.com

JOURNAL: Seminars in Hearing 24 (1): p43-62 February 2003 2003

MEDIUM: print

ISSN: 0734-0451

DOCUMENT TYPE: Article; Literature Review

RECORD TYPE: Citation

LANGUAGE: English

DESCRIPTORS:

METHODS & EQUIPMENT: hearing aid --...

...Gigahertz Transversal Electromagnetic Mode cell test method (GTEM cell test method

MISCELLANEOUS TERMS: ... electromagnetic noise...

... hearing aid compatibility...  
...input-referred interference level (IRIL

23/3,K/3 (Item 1 from file: 73)  
DIALOG(R)File 73:EMBASE  
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12008872 EMBASE No: 2003119408  
**Telecoils: Principles, pitfalls, fixes, and the future**  
Yanz J.L.; Preves D.  
Dr. J.L. Yanz, Micro-Tech Hearing Instruments, Inc., 3500 Holly Lane  
North, Plymouth, MN 55447 United States  
AUTHOR EMAIL: jyanz@hearing-aid.com  
Seminars in Hearing ( SEMIN. HEAR. ) (United States) 2003, 24/1 (29-41)  
CODEN: SEMHE ISSN: 0734-0451  
DOCUMENT TYPE: Journal ; Review  
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH  
NUMBER OF REFERENCES: 25

...reduced acoustic feedback and environmental noise problems. Inductive coupling, however, may have difficult-to-remove **interference** pickup from **electromagnetic** signals produced by common objects. In recent years, the effectiveness of inductive coupling has been...

...memory for telephone use, and knowledge of how to best position the telecoil within the **hearing aid**. Innovative features such as the automatic telecoil switch have made listening via telecoil even easier...  
MEDICAL DESCRIPTORS:

\* **hearing aid**; \*telephone  
**electromagnetic** radiation; electrical equipment; magnetism; amplifier; technology; review

23/3,K/4 (Item 2 from file: 73)  
DIALOG(R)File 73:EMBASE  
(c) 2004 Elsevier Science B.V. All rts. reserv.

11727681 EMBASE No: 2002300662  
**Electromagnetic interference of bone-anchored hearing aids by cellular phones revisited**  
Kompis M.; Hausler R.  
Dr. M. Kompis, Department of ENT, Inselspital, University of Berne, CH-3010 Berne Switzerland  
AUTHOR EMAIL: martin.kompis@insel.ch  
Acta Oto-Laryngologica ( ACTA OTO-LARYNGOL. ) (Norway) 2002, 122/5 (510-512)  
CODEN: AOLAA ISSN: 0001-6489  
DOCUMENT TYPE: Journal ; Article  
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH  
NUMBER OF REFERENCES: 5

**Electromagnetic interference of bone-anchored hearing aids by cellular phones revisited**

The **electromagnetic interference** of the recently introduced bone-anchored **hearing aid** (BAHA) model "BAHA Compact" by digital cellular phones is investigated and compared with that of...  
...different digital cellular phones in a laboratory setting indicated that

the noise level due to **electromagnetic interference** was at least 10 dB lower for the BAHA Compact device than for the BAHA...

...in the vicinity used a digital cellular phone. These findings confirm that the susceptibility to **electromagnetic interference** of the BAHA Compact device is low.

MEDICAL DESCRIPTORS:

\* **electromagnetic radiation**; \* **hearing aid** ; \*telephone

23/3,K/5 (Item 3 from file: 73)

DIALOG(R)File 73:EMBASE

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11380645 EMBASE No: 2001395362

**The nature of electromagnetic interference**

Levitt H.

H. Levitt, 998 Sea Eagle Loop, Bodega Bay, CA 94923-0610 United States

Journal of the American Academy of Audiology ( J. AM. ACAD. AUDIOL. ) ( Canada) 2001, 12/6 (322-326)

CODEN: JAAAE ISSN: 1050-0545

DOCUMENT TYPE: Journal ; Article

LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

NUMBER OF REFERENCES: 4

**The nature of electromagnetic interference**

This report provides a brief tutorial on the underlying physical forces that lead to **interference** with hearing aids and assistive listening devices, as well as measurement issues and possible solutions...

MEDICAL DESCRIPTORS:

\* **electromagnetic field**

physical parameters; **hearing aid** ; **device** ; measurement; article; priority journal

23/3,K/6 (Item 4 from file: 73)

DIALOG(R)File 73:EMBASE

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11380639 EMBASE No: 2001395356

**Wireless telephones and hearing aids: An overview**

Ross M.

M. Ross, 9 Thomas Drive, Storrs, CT 06268 United States

Journal of the American Academy of Audiology ( J. AM. ACAD. AUDIOL. ) ( Canada) 2001, 12/6 (286-289)

CODEN: JAAAE ISSN: 1050-0545

DOCUMENT TYPE: Journal ; Article

LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

NUMBER OF REFERENCES: 3

...aids and may actively interfere with the normal use of hearing aids because of the **electromagnetic interference** (EMI) generated by wireless telephones. The EMI generated by digital wireless telephones is much greater...

MEDICAL DESCRIPTORS:

\*telephone; \* **hearing aid**

futurology; **electromagnetic field**; research; article; priority journal

23/3,K/7 (Item 5 from file: 73)  
DIALOG(R)File 73:EMBASE  
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11186036 EMBASE No: 2001201670

Electromagnetic interference of bone-anchored hearing aids by  
cellular phones

Kompis M.; Negri S.; Hausler R.

Dr. M. Kompis, Univ. Clin. of ENT Head/Neck Surgery, Inselspital, CH-3010  
Berne Switzerland

AUTHOR EMAIL: martin.kompis@insel.ch

Acta Oto-Laryngologica ( ACTA OTO-LARYNGOL. ) (Norway) 2000, 120/7  
(855-859)

CODEN: AOLAA ISSN: 0001-6489

DOCUMENT TYPE: Journal ; Article

LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

NUMBER OF REFERENCES: 10

Electromagnetic interference of bone-anchored hearing aids by  
cellular phones

We report a case of **electromagnetic interference** between a  
bone-anchored **hearing aid** (BAHA) and a cellular phone. A 54-year-old  
women was successfully treated for severe...  
...phone. During a subsequent experiment, the buzzing sound could be  
reproduced and was identified as **electromagnetic interference** between  
the BAHA and digital cellular phones. Seventeen adult BAHA users from our  
clinic participated...

...the increasing number of users of both hearing aids and cellular phones,  
the incidence of **electromagnetic interference** must be expected to  
increase as well. Although to date there is no evidence that such  
**interference** may be harmful or dangerous to users of conventional or  
bone-anchored hearing aids, unexpected **interference** can be a frightening  
experience.

MEDICAL DESCRIPTORS:

\* **electromagnetic** , field; \* **hearing aid** ; \*telephone

23/3,K/8 (Item 6 from file: 73)  
DIALOG(R)File 73:EMBASE  
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07292912 EMBASE No: 1998194539

Hearing aid electromagnetic interference from digital wireless  
telephones

Skopec M.

M. Skopec, Ctr. for Devices/Radiological Hlth., Food and Drug  
Administration, Rockville, MD 20852 United States

IEEE Transactions on Rehabilitation Engineering ( IEEE TRANS. REHABIL.  
ENG. ) (United States) 1998, 6/2 (235-239)

CODEN: IEERE ISSN: 1063-6528

PUBLISHER ITEM IDENTIFIER: S1063652898043080

DOCUMENT TYPE: Journal; Article

LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

NUMBER OF REFERENCES: 5

Hearing aid electromagnetic interference from digital wireless  
telephones

...in-the-ear (ITE) and behind-the-ear (BTE) hearing aids were tested for audible **interference** at various distances from five types of digital wireless telephones. The **interference** which takes the form of a buzzing and a static sound was quantified using a...  
...system including a frequency analyzer and a pressure field microphone. The output of the each **hearing aid** was coupled to the microphone via Tygon tubing and a standard 2 cc coupler. The highest **interference**-induced sound pressure level (SPL), 122.5 dB, was measured from a BTE **hearing aid** placed within 2 cm of a transmitting Global System for Mobile Communications (GSM) phone. In this case, **interference** was detected up to a separation distance of almost 3 m. While all phones tested produced a similar **interference** level within 2 cm of this **hearing aid**, **interference** SPL from the code division multiple access (CDMA)-based system decreased more rapidly with distance...

MEDICAL DESCRIPTORS:

\* **hearing aid**

23/3,K/9 (Item 7 from file: 73)

DIALOG(R)File 73:EMBASE

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06965989 EMBASE No: 1997250586

**Risk management of electromagnetic compatibility with medical devices**  
Hocking B.

B. Hocking, 9 Tyrone Street, Camberwell, Vic. 3124 Australia

Journal of Occupational Health and Safety - Australia and New Zealand ( J. OCCUP. HEALTH SAF. AUST. NEW ZEALAND ) (Australia) 1997, 13/3 (239-242)

CODEN: JOHZE ISSN: 0815-6409

DOCUMENT TYPE: Journal; Article

LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

NUMBER OF REFERENCES: 11

**Risk management of electromagnetic compatibility with medical devices**

This paper presents a risk management approach to managing the problems of **electromagnetic** compatibility to medical devices in the workplace and elsewhere. The diverse uses of the **electromagnetic** spectrum are noted and the increasing range of medical products which may be susceptible to **interference** are described. Risk analysis and assessment issues are illustrated. Finally, some principles of risk control...

MEDICAL DESCRIPTORS:

\* **electromagnetic** radiation; \*medical instrumentation; \*occupational safety; \*risk assessment

article; artificial heart pacemaker; **hearing aid**; human; nerve stimulation; occupational health; wheelchair; workplace

23/3,K/10 (Item 8 from file: 73)

DIALOG(R)File 73:EMBASE

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06872743 EMBASE No: 1997157071

**Mechanical, acoustic and electromagnetic evaluation of the semi-implantable middle ear hearing device (SIMEHD)**

Abbass H.A.; Kane M.; Garverick S.; Ko W.H.; Maniglia A.J.; Frenz W.; Falk T.J.

Dr. A.J. Maniglia, 11100 Euclid Avenue, Cleveland, OH 44106 United States

Ear, Nose and Throat Journal ( EAR NOSE THROAT J. ) (United States) 1997  
76/5 (321-327)  
CODEN: ENTJD ISSN: 0145-5613  
DOCUMENT TYPE: Journal; Article  
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH  
NUMBER OF REFERENCES: 7

**Mechanical, acoustic and electromagnetic evaluation of the semi-implantable middle ear hearing device (SIMEHD)**

The properties of the partially implantable middle ear hearing device (SIMEHD) were extensively studied. The internal unit was subjected to 5,000 cycle of bending...

...is too small to cause any damage to the ossicular chain. The force resulting from **electromagnetic interference** over a wide frequency range (500 Khz -I Giga (10sup 9) Hz) was measured and...

**MEDICAL DESCRIPTORS:**

\* **hearing aid**

acoustics; article; **electromagnetic field**; force; mechanical stress

23/3,K/11 (Item 9 from file: 73)  
DIALOG(R)File 73:EMBASE  
(c) 2004 Elsevier Science B.V. All rts. reserv.

06257267 EMBASE No: 1995292412  
**A pathway for information transmission to the ear**  
Bento R.F.; Miniti A.; Sanchez T.G.; Leiner A.; Nunes C.A.  
Rua Pedroso Alvarenga 1255,22 Sao Paulo 04531-012 Brazil  
Ear, Nose and Throat Journal ( EAR NOSE THROAT J. ) (United States) 1995  
74/9 (640-644)  
CODEN: ENTJD ISSN: 0145-5613  
DOCUMENT TYPE: Journal; Article  
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

...either transcutaneously via radiofrequency or percutaneously by connector coupling. Whereas the former is sensitive to **electromagnetic interference**, the latter increases the risk of infection. To overcome these disadvantages, an infrared (IR) system...

**MEDICAL DESCRIPTORS:**

\*cochlea prosthesis; \* **hearing aid** ; \* **hearing loss--rehabilitation--rh**;  
\*hearing loss--therapy--th

23/3,K/12 (Item 1 from file: 155)  
DIALOG(R)File 155:MEDLINE(R)  
(c) format only 2004 The Dialog Corp. All rts. reserv.

09552175 21333371 PMID: 11440316  
**The European experience.**  
Bisgaard N  
GN Resound, Taastrup, Denmark.  
Journal of the American Academy of Audiology (Canada) Jun 2001, 12  
(6) p296-300, ISSN 1050-0545 Journal Code: 9114646  
Document type: Journal Article  
Languages: ENGLISH  
Main Citation Owner: NLM  
Record type: Completed

... in Europe as seen by the European Hearing Instrument Manufacturers

Association. Initial fear of widespread **interference** problems for **hearing aid** users in general owing to use of a new generation of mobile telephones seems unjustified. The background for the International Electrotechnical Commission 118-13 standard for measuring **interference** is described. No solution to complete elimination of **interference** problems resulting from direct contact between hearing aids and mobile telephones has yet been found...

? ; Electromagnetics ; Europe

Access DB# 112338  
64

# SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Suhan Ni Examiner #: 72566 Date: 1/16/04  
Art Unit: 2643 Phone Number 301-703-300-93 Serial Number: 091502,258  
Mail Box and Bldg/Room Location: AC285A5 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

\*\*\*\*\*  
Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: \_\_\_\_\_

Inventors (please provide full names): \_\_\_\_\_

Earliest Priority Filing Date: 02-11-00

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

outside and convert of the electromagnetic shielding case

\*\*\*\*\* 1-16-04 12:40 PM \*\*\*\*\*

STAFF USE ONLY		Type of Search	Vendors and cost where applicable
Searcher: <u>Pamela Reynolds</u>	NA Sequence (#) _____	STN _____	
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Date Searcher Picked Up: <u>1-20-04 3:00</u>	Bibliographic <u>✓</u>	Dr. Link _____	
Date Completed: <u>1-27-04 9M</u>	Litigation _____	Lexis/Nexis _____	
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Clerical Prep Time: _____	Patent Family _____	WWW/Internet <u>✓</u>	
Online Time: <u>68</u>	Other _____	Other (specify) <u>✓</u>	